

Application No.: 10/506,670  
Inventor: LIPKA  
Reply to Office Action of Nov. 19, 2007  
Docket No.: G1309 US S3

**Amendments to the Specification:**

1. At page 3 of the original specification, before the paragraph beginning with, "Accordingly, the present invention relates to polynucleotides selected from the group consisting of ...," please insert the following section heading:

BRIEF SUMMARY OF THE INVENTION

2. At page 48 of the original specification, before the paragraph beginning with, "The Figures Show:," please insert the following section heading:

BRIEF DESCRIPTION OF THE DRAWINGS

3. At page 50 of the original specification, before the paragraph beginning with, "The following Examples serve to further illustrate the invention," please insert the following section heading:

DETAILED DESCRIPTION OF THE INVENTION

4. At page 47 of the original specification, please replace the paragraph beginning with "These and other embodiments are disclosed and encompassed..." with the following amended paragraph:

These and other embodiments are disclosed and encompassed by the description and examples of the present invention. Further literature concerning any one of the methods, uses and compounds to be employed in accordance with the present invention may be retrieved from public libraries, using for example electronic devices. For example, as of this writing, the public database "Medline" may be utilized which is available on the Internet, for example under <http://www.ncbi.nlm.nih.gov/PubMed/medline.html>. Further databases and addresses as of this writing, such as <http://www.ncbi.nlm.nih.gov/>, <http://www.infobiogen.fr/>, [http://www.fmi.ch/biology/research\\_tools.html](http://www.fmi.ch/biology/research_tools.html), <http://www.tigr.org/>, are known to the person

skilled in the art and can also be obtained using widely used search engines, ~~e.g.,~~  
~~<http://www.google.de>~~. An overview of patent information in biotechnology and a survey of  
relevant sources of patent information useful for retrospective searching and for current  
awareness is given in Berks, TIBTECH 12 (1994), 352-364.

5. At page 56 of the original specification, please replace the paragraph beginning with  
“Glycoside hydrolases catalyze the hydrolysis of glycosidic bonds in oligosaccharides...,” with  
the following amended paragraph:

Glycoside hydrolases catalyze the hydrolysis of glycosidic bonds in oligosaccharides, polysaccharides and conjugates between glucosides and a non-carbohydrate moiety. They occur in all living organisms and are classified into 82 families (as of this writing see for example, <http://afmb.cnrs-mrs.fr/~cazy/CAZY/>; Henrissat, Biochem. J. 316 (1996), 695-696). Due to the presence of a specific motif (family 1 N-terminal signature; see Figure 9), PEN2 is assigned to family 1 glycoside hydrolases. Known enzymatic activities of family 1 enzymes range from  $\beta$ -glucosidase,  $\beta$ -galactosidase, 6-phospho- $\beta$ -galactosidase, 6-phospho- $\beta$ -glucosidase, lactase-phlorizin hydrolase,  $\beta$ -mannosidase, and myrosinase activities. A total of 282 different family 1 glycoside hydrolase proteins are at present classified in this group, including 106 plant sequences of which 47 are Arabidopsis thaliana sequences. PEN2 shows highest homology to  $\beta$ -glucosidases that constitute a major group among family 1 glycoside hydrolases. These enzymes hydrolyze either O-linked or S-linked  $\beta$ -glucosidic bonds. Substrates for these proteins are extraordinary diverse and include hormone glucosides, flavonol glucosides, cyanogenic glucosides, and glucosinolates. The aglycon product of the hydrolyzed substrates can serve a multitude of functions including growth and development (Selmar et al., 1987; Brzobohaty et al., 1993; Dietz et al., 2000), cell wall catabolism (Leah et al., 1995; Gerardi et al., 2001), lignification (Dharmawardhana et al., 1995 and 1999), and defense (Zheng and Poulton, 1995; Rsak et al., 2000).